

Project Documentation: Business Owner Portal (Vouch System)

1. Introduction

The Business Owner Portal is a modern web application developed using SolidJS as the front-end framework and Supabase as the backend service provider. The portal enables business owners to define their physical presence, manage customer loyalty campaigns, and gain insights from real-time data analytics. The main objective is to provide businesses with tools to manage their geofences, reward loyal customers, and analyze customer engagement efficiently.

2. System Overview

This portal is part of a larger ecosystem where customers interact through a mobile app, and business owners manage operations via this web dashboard. It focuses on four key modules:

- Core Location & Visit Management
- Loyalty & Campaign Management
- Analytics & Customer Insights Dashboard
- Business Profile & Account Settings

3. Core Features

3.1 Secure Authentication

Implemented using Supabase Auth for email/password-based login and session handling. Provides a secure and scalable authentication mechanism.

3.2 Multi-Location Management

Allows a single owner to manage multiple branches under one account. Example: 'Murugan Idli Shop' can handle T. Nagar, Besant Nagar, and Adyar outlets seamlessly.

3.3 Advanced Geofence Configuration

Interactive Map Editor for drawing geofences, Dwell Time Configuration to set minimum stay duration for Vouches, and Operating Hours control to prevent false check-ins.

4. Loyalty & Campaign Management

4.1 Reward Creator

Provides a simplified interface for creating and managing customer rewards such as 'Free Filter Coffee' or '10% Off Total Bill'.

4.2 Campaign Rules Engine

Supports Standard Loyalty Programs and Smart Partnerships (Cross-Promotions) between businesses for shared customer benefits.

- Standard Loyalty Program: If a customer earns 5 PoP tokens, then send a 'Free Filter Coffee' reward.

- **Smart Partnership (Cross-Promotion):** If a customer visits 'Higginbothams Bookstore' within 24 hours, they get a discount at the owner's café.

4.3 Campaign Scheduling

Allows businesses to define start and end dates for campaigns, enabling time-bound festive or seasonal offers.

5. Analytics & Customer Insights Dashboard

5.1 Main Dashboard Overview

Displays KPIs such as Total Vouches (daily/weekly/monthly), Rewards Issued, and ratios of new versus returning customers.

5.2 Visitor Analytics

Includes Traffic Heatmaps for peak hour analysis and Dwell Time tracking for optimizing stay duration.

5.3 Customer Loyalty Funnel

Categorizes customers into Passers-by, New, Returning, and Loyal Regulars to measure campaign effectiveness.

5.4 Verified Review Management

Displays cryptographically verified reviews submitted via the Vouch mobile app, allowing owners to manage feedback effectively.

6. Business Profile & Account Settings

6.1 Profile Editor

Allows business owners to update essential details like name, address, phone, and upload logos/images using Supabase Storage.

6.2 Account Management

Enables secure changes to login credentials and account information.

6.3 Future Integration: Billing & Subscription

Prepares the system for a Pro Plan subscription model to unlock advanced analytics and campaign features.

7. Technology Stack

Component	Technology Used
Frontend	SolidJS
Backend	Supabase
Database	PostgreSQL (via Supabase)
Authentication	Supabase Auth
Storage	Supabase Storage
Mapping	Mapbox / Leaflet (for geofence drawing)
Analytics	Chart.js / Recharts

8. Future Enhancements

- Integration of AI-driven campaign suggestions.
- Predictive analytics for customer retention.
- Multi-user role management (e.g., managers and staff).
- Integration with payment gateways for billing.

9. Conclusion

This project demonstrates the use of modern frameworks and cloud-native tools to create a practical, scalable business portal. By combining location intelligence, loyalty management, and customer analytics, it empowers business owners to engage more effectively with their customers and grow sustainably.